Attn: Dr. Steinberg.

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Hematoma-induced enhanced cerebral vasoconstrictions to leukotriene C4 and endothelin-1 in piglets: role of prostanoids.

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Cerebral hematoma enhances vasoconstriction induced by topical application of the vasoconstrictor agents endothelin-1 (ET-1) and leukotriene C4 (LTC4). We investigated the influence of dilator prostanoids on vasoconstrictions induced by ET-1 and LTC4 in piglets. Newborn pigs anesthetized with alpha-chloralose were fitted with closed cranial windows 4 d after cortical subarachnoid injections of artificial cerebrospinal fluid (aCSF) (control) or blood (hematoma). The responsiveness of pial arterioles to topical application of the vasoconstrictors ET-1 and LTC4 was examined in the control and hematoma groups before and after treatment with indomethacin (5 mg/kg, i.v.). Vasoconstriction to topical application of LTC4 and ET-1 was enhanced by hematoma compared with the control (28 +/- 2% versus 21 +/- 2% for 10(-8) M LTC4 and by 25 +/- 2% versus 15 +/- 1% for 10(-8) M ET-1, respectively). The lower dose of ET-1 (10(-12) M) dilated pial arterioles in the control group by 6 +/- 2%, hematoma blocked this dilation and it was converted to constriction (10 +/- 1%). Indomethacin treatment enhanced vasoconstriction to LTC4 in the control group to a similar constriction to that observed in the hematoma group. Indomethacin treatment also enhanced vasoconstriction to ET-1 in the control group (25 +/- 1% for 10(-8) M) to similar constrictions to those observed in the hematoma group (25 +/- 2% for 10(-8) M). Dilation to the lower dose of ET-1 was blocked and converted to constriction (17 +/- 2% for 10(-12) M) by indomethacin treatment.

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